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Description

SINGLE USE DISPOSABLE PALLET

BACKGROUND OF INVENTION

[0001] This patent relates to pallets used for supporting products during storage and shipping. More specifically, this patent relates to a single use disposable pallet that can be assembled without adhesive or tape and is capable of being handled with a forklift, pallet jack or clamp truck.

[0002] Pallets, sometimes referred to as carriers, skids or base pads, are used to support products during storage and shipping. Products are typically shipped on either traditional wooden pallets or paper-based pallets made of a combination of honeycomb and corrugated materials. Traditional wooden pallets are expensive and difficult to store and dispose of. Conventional paper-based pallets do not provide enough lateral strength to be clamp handled and usually require adhesive or tape to assemble. The present invention is intended to overcome these disadvantages and provide additional advantages as described herein.

Summary of Invention

[0003] The present invention is a single use disposable pallet for supporting products during storage and shipping. The pallet comprises a plurality of corrugated runners, a corrugated panel and lateral supports that interlock together. The corrugated runners are made from scored blanks that are folded into elongated open-ended box-like shapes. The folded runners have tabs that extend upwards from the top surface of the runners for insertion into slots in the corrugated panel. The lateral supports are inserted into openings in the upstanding tabs. Additional tabs located on either side of the pallet prevent the lateral supports from sliding out of the openings.

[0004] The lateral supports may be formed from sheets of laminated paperboard that has been convolutely wound and then formed into the desired shape. The lateral supports provide lateral strength so the pallet can be handled with a clamp truck.

[0005] The pallet may be made entirely of paper components and can be shipped broken down and assembled on site without adhesive or tape. Optional stretch wrap may be placed over the unit to protect the products from dust and dirt.

Brief Description of Drawings

[0006] Figure 1 is a perspective view of one embodiment of a pallet according to the present invention.

[0007] Figure 2 is an exploded view of the pallet of Figure 1.

[0008] Figure 3 is a plan view of a blank used in the manufacture of a middle runner of the pallet of Figure 1.

[0009] Figure 4 is a plan view of a blank used in the manufacture of a side runner of the pallet of Figure 1.

[0010] Figure 5 is a perspective view of a middle runner of the pallet of Figure 1.

Detailed Description

[0011] Turning to the drawings, there is shown in Figure 1 a preferred embodiment of the invention, a single use disposable pallet 10 for use during the shipping, handling and displaying of products. The preferred embodiment 10 comprises three runners 12 (consisting of a middle runner 11 and two side runners 13), a flat deck member 14, and four lateral supports 16, all made of paper. The runners 12 and the deck member 14 are made of corrugated board and the supports are made of wound laminated paper as described further below. When assembled, the pallet 10 provides a platform for one or more products (such as plastic garden hose reels) to rest on and can be han-

dled with either a forklift, pallet jack or clamp truck. Optional stretch wrap (not shown) may be placed over the unit to protect the products from dust and dirt.

[0012] The runners 12 are made from blanks of corrugated board that are folded into elongated open-ended box-like shapes. The flutes in the corrugated board preferably run longitudinally, that is, in the direction of the folds. The folded runners 12 have perforated tabs 18 integrally formed with the side panels 32, 66, 68 that extend above the load bearing top panels 21, 70, 72 of the runners 12. The perforations or openings 22 in the perforated tabs 18 are configured to receive the lateral supports 16 as described more fully below. Solid (non-perforated) tabs 19 located on either side of the pallet 10 prevent the lateral supports 16 from sliding laterally.

[0013] The runners 12 include two opposing side runners 13 located on either side of the pallet 10 and one or more middle runners 11 between and parallel to the side runners 13. The runners 12 lock in the support posts 16, provide vertical support for warehouse stacking, and provide clearance for fork lift capability.

[0014] Figure 3 is a plan view of a blank 24 used in the construction of a middle runner 11. The blank 24 is generally rect-

angular and has opposing ends 30 and top and bottom edges 40. Pairs of fold lines 28, 34, 36 run parallel to the top and bottom edges 40. The blank 24 comprises a bottom panel 26 defined by fold lines 28 and opposing ends 30; two side panels 32, each defined by fold lines 28, 34 and opposing ends 30; a pair of top panels 21, each defined by fold lines 34, 36 and opposing ends 30; and a pair of center mating panels 38, each defined by a fold line 36, opposing ends 30 and either a top or bottom edge 40. A pair of perforated tabs 18 are die cut from each top panel 21 as shown. Locking tabs 42 extend from the top and bottom edges 40 of the blank 24 for insertion into slots 44 die cut in the bottom panel 26 when the blank 24 is folded to form the middle runner 11. Flaps 48 are cut from the bottom panel 26 and are used to help hold the assembled runner 11 rectangular as described below.

[0015] Figure 5 is a perspective view of a constructed middle runner 11 with a portion cut away to show additional interior structure. To construct the middle runner 11, the flaps 48 are folded into an upright, vertical position. The center mating panels 38 are brought together in adjacent, facing relationship by folding the blank 24 at the parallel

fold lines 28, 34, 36 until the locking tabs 42 are inserted into the slots 44 (Figure 3). Again referring to Figure 5, as the center mating panels 38 are brought together, the tabs on top of the flaps 48 become inserted through the lateral slots 49 in the top panels 21, which keeps the flaps 48 vertical. The flaps 48 keep the runner 11 rectangular (prevent trapezoiding) and increase the vertical stacking strength of the runner 11.

[0016] In the constructed middle runner 11, the side panels 32 extend upward from and are disposed at right angles to the bottom panel 26, the top panels 21 extend inward from and are disposed at right angles to the side panels 32, and the center mating panels 38 extend downward from and are disposed at right angles to the top panels 21. The perforated tabs 18 extend upward from the side panels 32 above the plane defined by the top panels 21.

[0017] Figure 4 is a plan view of a blank 52 used in the construction of a side runner 13. This blank 52 is also generally rectangular and is defined by opposing ends 54 and top and bottom edges 56. Pairs of fold lines 58, 60 and 62 extend parallel to the top and bottom edges 56. The blank 52 comprises a bottom panel 64 defined by parallel fold lines 58 and opposing ends 54; two side panels 66, 68,

each defined by parallel fold lines 58, 60 and opposing ends 54; a pair of top panels 70, 72, each defined by parallel fold lines 60, 62 and opposing ends 54; and a pair of center mating panels 74, each defined by a fold line 62, opposing ends 54 and either a top or bottom edge 56. Perforated tabs 18 are die cut from the inner top panel 70 and solid tabs 19 are die cut from the outer top panel 72 so that they extend vertically upward above the top panels 70, 72 when the side runner 13 is constructed.

[0018] Locking tabs 76 extend from the top and bottom edges 56 of the blank 52 for insertion into slots 78 die cut in the bottom panel 64 when the blank 52 is folded to form a side runner 13. Flaps 84 are cut from the bottom panel 64 and are used to help hold the assembled runner 13 rectangular. Optional openings 88 may be cut into either end of the inner top panel 70 to accommodate vertical support posts.

[0019] Like the middle runner 11, the side runners 13 are constructed without the need for adhesive or tape. To construct a side runner 13, the flaps 84 are folded upright into a vertical position. The center mating panels 74 and 76 are brought together in facing relationship by folding the blank 52 at the parallel fold lines 58, 60 and 62 and

the locking tabs 76 are inserted into the slots 78. As the center mating panels 74 are brought together, tabs on top of the flaps 84 become inserted through lateral slots 86 in the top panels 70, 72, which keeps the flaps 84 vertical. The flaps 84 keep the runner 13 rectangular (to prevent trapezoiding) and increase the vertical stacking strength of the runner 13.

[0020] In the constructed runner 13 the perforated tabs 18 and the solid tabs 19 extend upward as shown in Figures 1 and 2. The side panels 66, 68 extend upward from and are disposed at right angles to the bottom panel 64, the inner and outer top panels 70, 72 extend inward from and are disposed at right angles to the side panels 66, 68, and the center mating panels 74 extend downward from and are disposed at right angles to the top panels 70, 72. The perforated and solid tabs 18, 19 extend upward from the side panels 66, 68 above the top panels 70, 72, as shown in Figures 1 and 2. Opposing end portions 80 of the bottom panel 64 and opposing portions 82 of the outer top panel 72 are rounded so that the assembled side runner 13, and therefore pallet 10, has rounded corners, which prevents any stretch wrap that is used from tearing.

[0021] In both the middle runners 11 and side runners 13 the

lateral supports 16 help keep the products from moving fore and aft while the tabs 18, 19 help keep the products from shifting side to side.

[0022] In the preferred embodiment each perforated tab 18 has two openings 22 for receiving a pair of lateral supports 16. However, other arrangements are possible including, without limitation, perforated tabs having a single opening or more than two openings. Likewise, the number and location of flaps 48, 84 in the middle runners 11 and in the side runners 13 may be varied as desired. Furthermore, the runners 12 need not be hollow rectangular structures, but could be other structures having upwardly extending perforated tabs for receiving the lateral supports 16 in interlocking fashion.

[0023] As best shown in Figure 2, the deck member 14 is substantially planar and has a number of parallel slits 24 formed therein. The slits 24 are arranged so that, when the pallet 10 is assembled, the perforated tabs 18 (but not the solid tabs 19) fit through the slits 24 in the deck member 14, thereby locking the runners 12 in fixed parallel relationship to each other. Preferably, the deck member 14 is made from corrugated paperboard having flutes that run lengthwise, that is, parallel to the runners 11 and

13, for better edge strength on the front and rear edges. In the assembled pallet 10, the deck member 14 rests on the top panels 21, 70, 72 of the runners 12 between the upwardly extending solid tabs 19 of the side runners 13. Preferably the depth (front to back) of the deck member 14 does not exceed the length of the runners 12.

[0024] The lateral supports 16 may be of the type manufactured by Sonoco Products Company of Hartsville, South Carolina and described in U.S. Patent Nos. 4,482,054; 5,593,039; 6,059,104 and 6,186,329, incorporated herein by reference. Each lateral support 16 may be formed from a sheet of laminated paperboard that has been convolutely wound and formed into the desired tubular shape. As best shown in Figure 2, each support 16 has a substantially rectangular cross-sectional profile. In the illustrated embodiment, a pair of opposing beads 46 is integrally formed in the upper and lower surfaces of the support 16 for added strength and stiffness. It should be noted, however, that the supports 16 may be any suitable configuration, including configurations having a circular or triangular cross-sectional profile. The supports 16 provide lateral strength so the pallet 10 can be handled with a clamp truck and help distribute the product weight to the corru-

gated runners 12.

[0025] To assemble the pallet 10, the deck member 14 is placed over the runners 12 so that the perforated tabs 18 extend through the slits 24 in the deck member 14 and the deck member 14 rests on the runners 12. Next, the solid tabs 19 on one side are bent backwards to allow insertion of the lateral supports 16.

[0026] The pallet has numerous advantages over the prior art. It is lightweight yet strong. It is entirely paper-based, so it can be disposed of in common paper receptacles and is completely recyclable in a paper system. It can be shipped knocked down and assembled by the user without adhesive or tape, thereby saving inbound shipping and storage space. The pallet does not rely on a glue bond or tape adhesion strength for structural integrity. The pallet may be handled with either a forklift, pallet jack or clamp truck. Once used, it may be disposed of, reused or recycled.

[0027] Other modifications and alternative embodiments of the invention are contemplated which do not depart from the scope of the invention as defined by the foregoing teachings and appended claims. It is intended that the claims cover all such modifications that fall within their scope.